



Identifying and Managing Hypertension Among Rural Youth

Evaluates approaches for implementing an electronic health record-linked clinical decision support (CDS) for use in rural primary care clinics to promote accurate diagnosis and effective management of hypertension in youth.

Study Overview

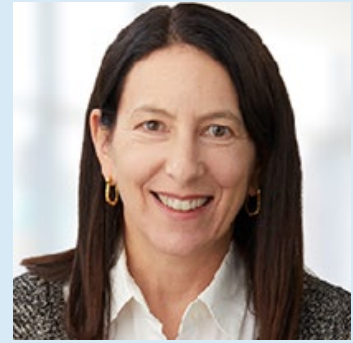
Problem: Most children and adolescents with hypertension are not adequately identified or treated, even though early identification is beneficial for preventing long-term complications including heart disease.¹ This may be due to a lack of clinician familiarity with pediatric hypertension criteria and guidelines, complex and time-consuming steps required for diagnosing pediatric hypertension, and competing demands during clinical visits. Youth living in rural areas may have a higher risk of hypertension compared to those living in urban areas and less access to pediatric specialty care.¹

Main Objective: To adapt and evaluate the use of *PedsBP* in primary care clinics of a mostly rural health system. *PedsBP* is a web-based, EHR-linked CDS tool that provides patient-specific care recommendations based on national guidelines for youth blood pressure management.

Background: The research team previously developed *PedsBP* (then called *TeenBP*) and implemented and evaluated the EHR-linked CDS in urban and suburban primary care clinics. This earlier work demonstrated that the CDS tool successfully increased the recognition of high blood pressure in youth and increased care for those with hypertension consistent with national guidelines.² A cost analysis showed that use of the CDS was not associated with a significant increase in medical expenditures.³ Due to its effectiveness and acceptability among clinicians, the CDS became the standard of care in 55 primary care and 17 subspecialty clinics treating children in the participating health system.¹

Approach: The current study is a pragmatic, three-arm cluster randomized trial in a new health system, with 40 participating primary care clinics located in small towns and rural communities in Minnesota, Wisconsin, and North Dakota. Participating clinics are randomly assigned to receive either (1) low-intensity implementation, including use of the *PedsBP* CDS with online training; (2) high-intensity implementation, including use of the *PedsBP* CDS with online and in-person training, monthly use reports, and ongoing support and communication from study staff; or (3) no implementation of the CDS (i.e., usual care). Primary outcomes include a repeat of elevated blood pressure measurements and clinical recognition of hypertension within six months of meeting criteria. Secondary outcomes include initiation of antihypertensive medications, use of diagnostic imaging, and blood pressure measurement at one year of follow-up.

Results: Preliminary results show that *PedsBP* improves blood pressure care in rural youth and that effectiveness varies by approach to CDS implementation. Patients seen



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at clinics randomized to *PedsBP* implementation (both high- and low-intensity implementation) were significantly more likely than those seen at usual care clinics to have an elevated blood pressure re-measured during a visit and to have their hypertension clinically recognized.

In addition, patients seen at clinics randomized to high-intensity implementation were significantly more likely to have an elevated blood pressure re-measured during a visit and to have their hypertension clinically recognized than were patients seen at clinics randomized to low-intensity implementation.

Additional findings from this study are forthcoming and will be shared in future publications, which will be posted [here](#).

Primary Care Relevance

Findings from this study will provide guidance for rural primary care practices about how they can most effectively implement a CDS for youth hypertension identification and management, leading to improved cardiovascular disease prevention and management.

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 2. Kharbanda EO, Asche SE, Sinaiko A, Nordin JD, Ekstrom HL, Fontaine P, Dehmer SP, Sherwood NE, O'Connor PJ. Evaluation of an electronic clinical decision support tool for incident elevated bp in adolescents. *Acad Pediatr*. 2018 Jan-Feb;18(1):43-50. doi: 10.1016/j.acap.2017.07.004. Epub 2017 Jul 16.
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